HEAVENS ON EARTH. FROM THE TABULA SMARAGDINA TO THE ALCHEMICAL FIFTH ESSENCE

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1. Alchemy and Cosmology

The confrontation between Western philosophers and alchemy began in the forties of the twelfth century: 1144 has recently been confirmed as the date of the translation of the *Testamentum Morieni* made by Robert of Chester.[1] References to alchemy were also found in the following astrological translations: the book of 'Umar translated into Latin by Hugo of Santalla and edited in the *Liber trium iudicum*, and two texts by Zahel (Sahl ibn Bishr).[2] The same Hugo of Santalla contends with Plato of Tivoli for the merit of being the earliest translator of the *Tabula smaragdina*, for he rendered into Latin an important text of the Hermetic tradition to which the *Tabula* was appended, the *Liber de secretis nature et occultis rerum causis* attributed to Apollonius, the Arab Balīnūs;[3] Hermes himself seems to owe his basic position in the alchemical tradition to the fame acquired through this book.[4] Western translators of other alchemical works include also Gerard of Cremona and a host of anonymous scholars.[5]

But the Arabic sciences that Latin scholars were at the time acquainted with were soon to become an important part of the philosophers' knowledge, as *philosophia* underwent a radical redefinition in the last decades of the twelfth century. From an all-encom-

[1] R. Lemay, "L'authenticité de la Préface de Robert de Chester à sa traduction du Morienus," *Chrysopoeia* 4 (1990-91), 3-32.

[2] C. Burnett, "The astrologer's assay of the alchemist: early references to alchemy in Arabic and Latin texts," *Ambix* 39 (1992), 103-109.

[3] Paris, Bibliothèque Nationale de France, ms. lat. 13951; an edition prepared by F. Hudry, is forthcoming in *Chrysopoeia*. Plato's translation in R. Steele and D. Waley Singer, "The Emerald Table," *Proceedings of the Royal Society of Medicine* 21 (1928), 1-17.

[4] Cf. U. Weisser, *Das 'Buch über das Geheimnis der Schöpfung' von Pseudo-Apollonios von Tyana*, (Berlin, 1980), esp. 48 and 68-69.

[5] R. Halleux, *Les textes alchimiques*, (Turnhout, 1979), 70-72; idem, "The reception of Arabic alchemy in the West," in R. Rashed ed., *Encyclopedia of the History of Arabic Science*, 3 vols. (London, 1996), 3: 886-902.

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passing Christian wisdom corroborated by Aristotelian logic and Platonic cosmology, it was transformed into a highly complex discipline which had to be articulated according to the relationship that its branches had with the different domains of intellectual and practical life. In the process, alchemy became linked to natural philosophy, and especially to astrology, by authors like Dominicus Gundisalvi, Daniel of Morley, Robert of Lincoln.[6]

On the other hand, alchemical authors defined themselves as philosophers, and it was especially the philosophical quality of Hermes Trismegistus, the authority to whom the alchemical texts referred, to be recognized in philosophical milieus. Three philosophical texts circulated in the Latin culture of the twelfth century under the name of Hermes: the *Asclepius*, the *Liber XXIV philosophorum*, and the *Liber de sex rerum principiis*.[7] Hermes was presented as the father of all sciences and arts in a prologue written by Robert of Chester and appended to the alchemical *Testamentum Morieni*, to the *De sex rerum principiis*, and to the earliest edition of the *Septem tractatus*.[8] Yet, notwithstanding the interest of philosophers such as Albert the Great and Roger Bacon, the Scholastic curriculum never included alchemy: this is not only evident from the answer eventually given to the *quaestio de alchimia* at the end of the thirteenth century, but also from the almost total absence of references to alchemy in students' guidebooks of an earlier date.[9]

A possible reason for this exclusion may lie in the peculiar characteristic of alchemy: a wisdom where theoretical knowledge is acquired and taught in close union with practice, indeed where

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[6] Halleux, *Les textes*, 43; C. Crisciani, M. Pereira, *L' arte del sole e della luna. Alchimia e filosofia nel Medioevo* (Spoleto, 1996), 32-33.

[7] *Asclepius*, in A.D. Nock, A.J. Festugière, *Corpus hermeticum*, vol. 3 (Paris, 1973). English translation in B. Copenhaver, *Hermetica. The Greek* Corpus Hermeticum *and the Latin* Asclepius *in a new English translation, with notes and introduction* (Cambridge, 1992), 67-92. *Liber viginti quattuor philosophorum*, ed. F. Hudry (Hermes Latinus III.1—Corpus Christianorum Continuatio Mediaevalis CXLIII A) (Turnhout, 1997). *Liber de sex rerum principiis*, ed. Th. Silverstein, in *Archives d'Histoire Doctrinale et Littéraire du Moyen Age* 22 (1955) , 247-302.

[8] *De sex rerum principiis*, 247; *Liber de compositione alchemiae quem edidit Morienus Romanus, Calid Regi Aegyptiorum, quem Robertus Castrensis de Arabico in Latinum transtulit*, in J.J. Manget, *Bibliotheca Chemica Curiosa*, 2 vols. (Geneva, 1702), I: 509; *Septem tractatus seu capitula Hermetis Trismegisti*, in *Ars Chemica, quod sit licita recte exercentibus*, (Strasbourg, 1566), 7-9.

[9] See C. Crisciani, "La *quaestio de alchimia* fra Duecento e Trecento", *Medioevo* 2 (1976), 119-168. In C. Lafleur, *Quatre introductions à la philosophie* (Toronto, 1988), alchemy is named only once, in a dismissive sentence concerning "scientias pariculares [...] que ad presens sunt omittende" (*Philosophica disciplina*, 99).

knowledge is born from practice and not *vice versa*; this ran entirely counter to the definition of philosophy then prevailing in Latin culture, which was derived from the traditional Greek separation between *theoria* and *praxis*, where the latter was undisputably subordinated to the former.

However, several of the translated alchemical texts displayed doctrines of a type that Latin philosophers were able to recognize as pertaining to their own domain. For most cosmologists of the twelfth century, there were hardly any doubts that alchemy was linked to that middle level of being to which heavens and stars belonged, and thus they considered alchemical doctrines relevant to understanding how nature operates.[10] Perhaps the first among Latin philosophers to make explicit use of an alchemical text was Hermann of Carinthia in his *De Essentiis*. In the light of what we have seen about alchemical translations, it does not come unexpectedly to find the *Tabula smaragdina* quoted by Hermann, whose activity as a translator was of prime importance. Yet it may be more surprising to discover that such an alchemical authority was alleged to support Hermann's statements about the position of the planets, one of the more intensely debated cosmological issues of the period.[11]

In fact, the *Tabula*, like other alchemical texts of Arabic origin (e.g. the *Turba philosophorum*, Artefius' *Clavis Physicae*, Hermes' *Septem tractatus*), merge their operative contents with general statements about the world—its creation and its intrinsic dynamism—that characterize an alchemical philosophy of nature soon identified with the name of Hermes, who is differently linked to all the texts I shall examine and, generally speaking, to a large number of the alchemical texts of Arabic origin, if not to all of them.[12]

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[10] T. Gregory, "L'idea di natura nella filosofia medievale" (1964), reprinted in *Mundana Sapientia. Forme di conoscenza nella cultura medievale* (Roma, 1992), 77-114: 107-108; idem, "Forme di conoscenza e ideali di sapere" (1987), repr. in *Mundana Sapientia*, 1-59 : 33.

[11] Hermann of Carinthia, *De Essentiis*, ed. C. Burnett (Leiden, 1982), 36-40.

[12] On Artefius see P. Carusi, "Animalis, herbalis, naturalis. Considerazioni parallele sul *De anima in arte alchimiae* attribuito ad Avicenna e sul *Miftah al-Hikma*, opera di un allievo di Apollonio di Tiana," *Les crises*, 59-72. For some remarks on the link between alchemical and cosmological motifs, cf. M. Pereira, "L'origine dell'idea di quintessenza nell'alchimia medievale," *Atti del VII Convegno Nazionale di Storia e fondamenti della chimica* (L'Aquila-Rome, 1997), 71-81.

2. Hermetic Motifs

The alchemists quoted Hermes to support their cosmological as well as their practical knowledge: among the fragments selected by Festugière we find some statements that plainly refer to philosophical ideas which at least partially resemble Stoic topics. Reality was envisaged as a unitary continuum: "the totality of things, though multiple, is said to be One." Spirit and matter are but two polarized stages in the One, and there is no sharp distinction between animate and inanimate beings: "If you do not spiritualize bodies and do not corporify spirits the expected result will not ensue." The active qualities of the metallic bodies become alive under the action of warmth and are frozen under the action of cold; hence "by the more-than-wise Hermes metal is defined a living animal." Yet there is an order that makes it possible for humans to expect definite results from their act: "if you sow corn, corn will sprout up." These passages are clearly attuned to key statements of the *Asclepius*, where the oneness of All is said to produce the multiplicity of things through the activity of *physis*.[13]

Keeping on the same ground, the Hermetic teaching reported by Apollonius/Balīnūs stands on principles easily harmonized with the purpose of alchemy, that is to create a new balance out of the material and the spiritual components of all reality, producing material perfection by means of human activity.[14] The *Liber de secretis nature* intends to explain the causes of things, taking as its starting point "the first doctrine taught by the most ancient philosophers," i.e. alchemy.[15] The secrets of Hermes, revealed to Balīnūs, are the sources and principles of things and the *vinculum*

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[13] A.J. Festugière, *La révélation d'Hermès Trismégiste*, 4 vols. (Paris, 1949-54), 1: 242, 249, 250 (fragments 1, 18, 25, 26bis; my translation). M. Lapidge, "The Stoic inheritance", in P. Dronke, *Twelfth-Century Western Philosophy* (Cambridge, 1988), 103-104, cites the *Asclepius*, but no alchemical writings, as one of the sources of Stoic cosmology in the twelfth century. Cf. *Asclepius*, 2-3 (English translation in Copenhaver, *Hermetica*, 67-8).

[14] Weisser, *Das Buch*, 70-71; P. Lory, *Alchimie et mystique en terre d'Islam* (Paris, 1989), *passim*. P. Carusi, "L'alchimia secondo Picatrix," *Atti del VII Convegno*, 55-59. P. Travaglia, "Note sulla dottrina degli elementi nel *De secretis nature*," *Studi Medievali* 3a serie, 9 (1998), 121-157.

[15] Paris, Bibliothèque Nationale, ms. lat. 13951, f. 1r, quoted in J. Corbett, *Catalogue des manuscrits alchimiques latins*, 2. vols. (Paris, 1939-51), 1: 164 "disciplinam ex qua philosophorum antiquissimi suscepte narrationis protulerunt exordium."

that bonds together all cosmic couples: low and high, good and evil, material and spiritual, small and large, male and female.[16]

At the end of the text, the *Tabula smaragdina* recapitulates this cosmology in the first aphorism, and then proceeds to distillatory practice, until it finally equates human and divine creation in the tenth aphorism.The different Latin versions give more nuanced significance to their general meaning: the oneness of high and low is affirmed analogically in the *vulgata* text and in Roger Bacon's edition by the words *est sicut, respondent*, while its dynamics is stressed by Hugh of Santalla (*superiora de inferioribus, inferiora de superioribus*).[17] Translators evidently hesitate between the monistic interpretation made possible by Plato's wording and to a lesser extent by Hugo's, and the overstated creationism of Bacon, unparalleled in the Arabic text. A third possibility, i.e. mutual possession, arises when we consider M. Plessner's modern translation of the Arabic text of Balīnūs.[18]

The tenth aphorism stresses the structural identity of the creation of the world with the alchemical *opus*, which in aphorisms three to nine is qualified in terms that make it recognizable as distillation, an art that originated in the Hellenistic culture and traced its origins back to the teachings of a woman scientist, Mary the Jewess. Therefore the *Tabula smaragdina* reveals the peculiar status of distillation as the core of alchemy, the process by which human *artificium* prolongs God's creation.[19]

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[16] Paris, Bibliothèque Nationale, ms. lat. 13951, ff. 1r, 3v, 16r quoted by C. Burnett, "Scientific speculations", in Dronke, *A History*, 172n: "Sublimia inferioribus, bona pessimis unico applicationi genere conexa [...] neque in aliquo repugnat materialia et non materialia applicationis nexu vinciri [...] subtilia grossis, mascula feminis, moto quodam intercedente alterno sociantur nexu."

[17] Paris, Bibliothèque Nationale, ms. lat. 13951, f. 31r: "Superiora de inferioribus, inferiora de superioribus / Prodigiorum operatio ex uno." Cf. Plato of Tivoli's translation: "Quod est superius est sicut quod inferius, et quod inferius est sicut quod est superius / Ad preparanda miracula rei unius" (Steele-Singer, *The Emerald Table*, 8). Cf. also the text given by Roger Bacon in his commentary to the *Secretum secretorum*, in *Opera hactenus inedita Rogeri Baconi* V, ed. R. Steele, Oxford 1920, 116: "[...] inferiora superioribus et superiora inferioribus respondent / Operator miraculorum unus solus est Deus, a quo descendit omnis operacio mirabilis."

[18] M. Plessner, "Neue Materialien zur Geschichte der *Tabula smaragdina*," *Islam* 16 (1927), 88: "Das Oberste gehört zum Untersten und das Unterste zum Obersten."

[19] Hugh of Santalla: "Que quidem operatio secundum maioris mundi compositionem habet subsistere"; Plato of Tivoli: "Sicut hic mundus creatus est"; Roger Bacon: "Et secundum disposicionem maioris mundi currit hec operacio" (cf.

3. The Root of All Beings

Distillation transforms matter inside a vessel without any loss or accretion, in a circular process of rarefaction/ascent and condensation/descent. This operation, which in the cosmogonic process had been caused by warmth, can be reproduced by the alchemist, who uses fire to bring forth the continuous change ending in the outcome of a subtle matter, which could be understood as a manifestation of pneuma. So the alchemist makes visible the single material root of all individual beings, matching the Hermetic doctrine of the *res una* at the operative level.[20]

An alchemical text attributed to Hermes, the *Septem tractatus* or *Tractatus aureus* (surely of Arabic origin, perhaps even deriving from an Hellenistic treatise[21]), offers more hints as to what this 'one thing' was deemed to be. The hidden practice (*occulta operatio*), that is, the core of the *Septem tractatus*, is distillation, called 'water separation' (*aquae divisio*). Its purpose is to separate the simple elements which compound the mixed body chosen by the alchemists to start their opus. By means of this practice alchemy, "the science of the four elements," makes people able to obtain the 'stone' that can save body and soul: "By means of it you will relinquish serious illness, melancholy, injury, and pain; and with the help of it you will go from darkness to light, from wilderness to community, from misery to plenty."[22]

The alchemist must have a rational attitude (*ratiocinare*) and must be capable of unveiling metaphors: in a word, he must be a philosopher very much in the same sense as, for example, William of Conches, who claimed that natural reality is to be understood by means of reason, which liberates truth from the veil (*integumentum*) that surrounds it in mythical or Biblical cosmologies.[23]

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above, note 17). Cf. F.S. Taylor, "The evolution of the still," *Annals of Science* 5 (1945), 185-202.

[20] F.S. Taylor, "The idea of quintessence," in *Science, Medicine and History. Charles Singer Presentation Volume* (Oxford, 1953), 252. Pereira, *L'origine*, 74. Cf. also U. Szulakowska, "Thirteenth century material pantheism in the pseudo-Lullian S-circle of the powers of the soul," *Ambix* 35 (1988), 130: "Hermetic pantheism, perhaps, reinforced in alchemy a general monistic tendency which was also influenced by Stoic ideas of 'pneuma.'"

[21] Festugière, *La révélation*, 1: 107, n. 6.

[22] *Septem tractatus*, 14.

[23] Cf. E. Jeauneau, "L'usage de la notion d'*integumentum* à travers les gloses de Guillaume de Conches," *Archives d'Histoire Doctrinale et Littéraire au Moyen Age* 24 (1957), 35-100.

One such *integumentum* is the metaphor of the egg, which makes visible, if not easily conceivable, the material activity of the spirit and the harmony between matter and spirit: "Son, the disposition that is sought by philosophers is one, in our egg, [...] and it is composed of the four elements."[24] The *Septem tractatus* move from the metaphor of the eggs to an explicit argument about the structural analogy of reality that is contained in it by unveiling at one and the same moment its non-hierarchical meaning and the condition of its possibility: i.e., the existence of a middle term between matter and spirit: "Which of the two is nobler, heaven or earth? Father Hermes answered, They mutually need each other and we teach to seek the middle."[25]

The middle term between heaven and earth is not a third level or a middle rung in the ladder of being, but the one and common matter granting the mutual interdependence of higher and lower, and it is represented by means of a chthonian symbol, the snake (*draco*) dwelling everywhere. It is the invisible material root of reality which only the alchemical *opus* can bring to light.[26] To the alchemist's eye, this symbol signifies solid water, which is the 'form' of things (*aquina forma permanens*); light delivered from darkness; and the middle term embracing heaven and earth. In a word, the idea of pneuma.[27] The stone that alchemy seeks to find might therefore be compared to the image of matter given in an anonymous twelfth century philosophical commentary on Plato's *Timaeus*, where *hyle*, prime matter, is said to be the one and yet double root of everything: father and mother, form and matter of all bodies.[28]

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[24] *Septem tractatus*, 16-17: "Fili, inquisita dispositio a philosophis una est, in ovo nostro ... ex 4 elementis compositio coaptata et composita." On the egg metaphor in the Platonic tradition, cf. P. Dronke, *Fabula. Explorations into the Use of Myth in Medieval Platonism* (Leiden, 1974), 85.

[25] *Septem tractatus*, 17: "Pater [Hermes]: [...] masculus est coelum foeminae, et foemina terra masculi. Filius: Pater, quid istorum est dignius altero, an esse coelum vel terram? Respondit, uterque altero indiget: mediocre enim propositum est praeceptis."

[26] *Septem tractatus*, 18: "draco autem in omnibus his inhabitat [...] eius autem domus sunt tenebre et nigredo in eis."

[27] *Septem tractatus*, 21: "O aquina forma permanens, regalium creatrix elementorum ... O natura maxima naturarum creatrix [...]. Mediocre autem est figura cum coelo et cum terra, quod est aqua. Omnium autem primum est aqua."

[28] T. Gregory, *Platonismo medievale: studi e ricerche* (Rome, 1958), 66-121; cf. Dronke, *Fabula*, 89.

The above-mentioned *aquina forma permanens* takes us back even further, to the Presocratic speculations about the first principle of things: a step explicitly made in the *Turba philosophorum*, where the oneness of matter/nature appears to be organized by means of a macrocosmic distillation: the sun extracts from air a subtle spirit, which is the life of all creatures.[29]

The same uniformity of macrocosmic dynamics and alchemy becomes also evident in the peculiar use of the egg metaphor which "all philosophers gave as *exemplum* of their *opus*."[30] Moreover, *Sermo IX* argues that inside the four elements, there is a hidden secret (clearly the spirit and life evoked in *Sermo I*). This provides a convenient transition to the following part of the *Turba*, where alchemical processes are discussed. The outcome of the alchemical operations is thus assimilated to the mysterious material principle of reality, and alchemists are vouchsafed in their philosophical claims.

4. Subtle Matter

Given that Stoic and Presocratic motifs are so intimately embedded in the alchemical tradition, we can better understand why Tullio Gregory, in his research on the twelfth century cosmologists, repeatedly stressed the relevance of alchemy, linking it to astrology and cosmology, although he himself, and more so later historians, did not develop this insight further.[31] It is evident that whenever the idea was emphasized that nature was *anima mundi*, an intermediate being between high and low, or the love bond keeping the universe together, there was something relevant that alchemists could disclose to cosmologists, although their doctrines were neither identical nor oriented in the same direction. Perhaps alchemists even deserve to be appreciated for the "scientific originality" and "the tentative exploration of new areas of study" that

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[29] *Turba philosophorum. Ein Beitrag zur Geschichte der Alchemie*, ed. J. Ruska, (Berlin, 1931), 110, Sermo I: "tenue quid [...] quod est spiritus et vita fit omnibus creaturis."

[30] *Turba philosophorum*, 112, Sermo IV "[...] omnes philosophi in hac excellentissima arte ovum descripserunt exemplum, ipsum exemplum suo operi posuerunt."

[31] T. Gregory, *Anima mundi. La filosofia di Guglielmo di Conches e la Scuola di Chartres* (Florence, 1955), 98: "natura come tramite fra mondo inferiore e superiore, nesso e vincolo dell' universo."

Winthrop Wetherbee, though without naming alchemy, opposed to the "old-fashioned ideas" of the cosmologists.[32]

But to take seriously the doctrines of the alchemists also means to think in more complex terms about the crucial transition in the field of Latin philosophy of nature between the twelfth and the thirteenth centuries. Testimonies to the presence of Stoic ideas in the twelfth century should thus be considered along with studies on alchemy. For indeed, some scholars regard Stoic materialism and the idea of pneuma as the base of the whole historical course of alchemy and stress the anti-Aristotelian features of the "logic of living being" which supports the idea of pneuma.[33]

As we have seen, the Stoic notion of pneuma often lingers behind the more traditional vision of nature as *anima mundi*, and whenever the world-soul was equated with *ignis* or *vigor*, there existed at least the possibility to see this active force as operating from the inside of matter, even if the most widely accepted view stressed the heavenly origin of nature as God's servant or tool. In the light of the subsequent Aristotelian development to which it gave way, only this second view has been qualified as being 'philosophical'. But what about the first?

Its philosophical appeal seems to have been recognized in a writing of the early thirteenth century, the *De generatione stellarum* which until recently has been attributed to Robert Grosseteste.[34] But whoever the author was, he tried to establish the true material nature of the stars without fully consenting to the Aristotelian dualism of heavenly and earthly matter and invoked the authority of *doctores alchimiae* as witnesses to his own belief: "Alchemical doctors suppose that inside every natural mixed body there is a *quinta essentia*, like something that encompasses all four ele-

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[32] W. Wetherbee, *Philosophy, cosmology and the twelfth-century Renaissance*, in Dronke, *A History*, 28-29.

[33] B. Obrist, *Les débuts de l'imagerie alchimique* (Paris, 1982), 30; G. Freudenthal, "The Problem of Cohesion between Alchemy and Natural Philosophy: from Unctuous Moisture to Phlogiston," in *Alchemy Revisited*, 114-16. For the logic of distillation as 'logique du vivant,' cf. S. Colnort-Bodet, *Le code alchimique devoilé. Distillateurs, alchimistes et symbolistes* (Paris, 1989), 69-70. B. Joly, although referring to later alchemy, stresses how similar experiences gave rise to similar doctrines: *Rationalité de l'alchimie au XVIIe siècle* (Paris, 1992), 81-95. Cf. also note 13 above.

[34] The attribution of the *De generatione* to Robert Grosseteste has been questioned by R. Southern, *Robert Grosseteste. The Growth of an English Mind in Medieval Europe* (Oxford, 1986), 124-125. Cecilia Panti, whose new edition of *De generatione stellarum* is forthcoming, dates this treatise to 1217-1220, but in a private communication she also raised consistent doubts about Grosseteste's authorship.

ments."[35] As James McEvoy noted, this effacement of the difference between heavens and earth proves meaningful as a "germinative influence" on Robert's major work *De luce*. Two basic ideas are at work here: "the continuity of nature and action throughout the material world, and the ultimate unity of matter ... Lying behind both of these notions is a challenge to the Aristotelian dualism of heavenly and earthly matter."[36] Both ideas, as we have seen, were explicitly contained in alchemical texts.

Moreover, the *De generatione stellarum* attributes to alchemists the use of a word until now unnoticed in the alchemical literature of the twelfth century: *quinta essentia*. Its meaning is clarified in a passage of another, surely authentic, work by Grosseteste, the *De cometis*, where it is said that the core of every earthly body is constituted by "spiritual bodily things" (*res corporeae spiritales*) similar to the nature of the heavens. In the same text, Robert affirms the link between astrology and this peculiar structure of matter.[37]

No one else in the early thirteenth century seems to have been receptive to such alchemical ideas concerning matter and *physis*, and only later the term *quinta essentia* became of common cosmological use.[38] Yet some theologians used it in anthropological

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[35] *De generatione stellarum*, in *Die philosophischen Werke des Robert Grosseteste, Bischofs von Lincoln*, ed. L. Baur, = *Beiträge zur Geschichte der Philosophie des Mittelalters*, 9 (1912), 36: "Item supponunt doctores alchimiae, quod in unoquoque corpore naturali et complexionato inest quinta essentia et est sicut continens quattuor elementa [...]."

[36] McEvoy, *The Philosophy of Robert Grosseteste* (Oxford, 1982), 182-3. However, McEvoy already noted the main problem at the basis of Southern's reconsideration and expressed "astonishment that an intelligent reader [i.e. Grosseteste] could at once know so much and yet understand so little of the Aristotle he had been studying."

[37] *De cometis*, in *Die Philosophischen Werke*, 38: "In omni namque re complexionata terrestri sunt res corporeae spiritales, assimilatae naturis caelestibus [...]." Cf. C. Panti, "L'incorporazione della luce secondo Roberto Grossatesta", *Medioevo e Rinascimento* 13/n.s. 10 (1999), 45-102.

[38] Constantine of Pisa, *Liber secretorum alchimiae*, ed. B. Obrist (Leiden, 1990), 69, provides alchemy with a cosmological background, though he interprets the *quinta essentia* as the separate fifth element of the *De caelo*. Although the idea of a fifth essence is of Aristotelian origin, the term itself is not found in Aristotle: cf. P. Moraux, "Quinta Essentia" s.v. in *Realenzyklopädie* (Berlin, 1963), 1171-1263. The earliest translations of Aristotle's *De caelo*, *Physica*, and ps.-Aristotle's *De mundo* do not use the word *quinta essentia*, though the word had already appeared in some twelfth century texts in a clearly Aristotelian sense (Cf. D. Jacquart, "Aristotelian thought in Salerno," in Dronke, *A History*, 416-418). Among scholastic authors, *quinta essentia* is used as an equivalent of *aether* in Bonaventura da Bagnoregio and Ramon Llull.

contexts, especially the Franciscan John of la Rochelle who used it, in a sense that was very close to that of Grosseteste's *res corporeae spirituales,* to indicate the subtle substance connecting body and soul.[39]

These considerations suggest that concepts of the alchemical tradition, though never accepted in the Scholastic movement, flowed like an undercurrent beneath it, carrying residues of the Platonic and Stoic traditions into the mainstream of the Hermetic conception of the All-as-One, whose full emergence was prevented by the strength of Aristotelian dualism. Only at the beginning of the fourteenth century did it surface anew in a momentous alchemical text, the *Testamentum,* attributed to Raimond Lull, in which we encounter a fully developed, genuinly alchemical philosophy.[40]

5. Fifth Essence

The clear connection between operative processes and cosmology that is found in many alchemical texts of Arabic origin appears to have been ignored by the majority of Latin alchemists of the thirteenth century, whose main interest lay instead with the metallurgical side of the opus.[41] Still, the *Summa perfectionis magisterii,* whose relevance for the development of Latin alchemy is indisputable, encompasses the alchemists' doctrine within a theory of earthly matter, as William Newman has shown in detail.[42]

The opening pages of the *Testamentum* give us quite a different perspective, for they start with an account of the origin of the world and place the alchemical *opus* within a fairly old-fashioned cosmological setting. Of course, one wonders why the author, a

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[39] Jean de la Rochelle, *Summa de anima,* ed. J.G. Bougerol (Paris, 1995), 119, ll.57, 62-67 and 121, ll. 51-57. Cf. Bougerol, *Introduction,* 29, for other occurrences of the term in the theological literature of the early thirteenth century; L. Mauro, "Il corpo nella riflessione antropologica contemporanea," in *Il tema della corporeità in san Bonaventura e nel pensiero tardo medievale* (Bagnoregio, 1997), 32.

[40] M. Pereira and B. Spaggiari, *Il* Testamentum *alchemico attribuito a Raimondo Lullo. Edizione del testo latino e catalano dal manoscritto Oxford, Corpus Christi College,* 244 (Florence, 1999); M. Pereira, *L' oro dei filosofi. Saggio sulle idee di un alchimista del Trecento* (Spoleto, 1992).

[41] For an overall approach to Latin alchemy see Halleux, *Les textes*; and Crisciani-Pereira, *L'arte del sole e della luna.*

[42] W.R. Newman, *The* Summa perfectionis magisterii *of Pseudo-Geber* (Leiden, 1991), 143-192.

man imbued with scholastic learning, needed (or chose) to resume a discarded world-view at the very moment that he was trying to attune alchemical doctrine to Aristotelian physics. Too little—just about nothing in fact—is known about the author of the *Testamentum* to suggest any answer. The only thing I can say at this point is that his cosmology looks like a logical development of that mix of alchemical, Stoic and Platonic (more exactly Timaic) motifs that we have detected in the twelfth century writings surveyed above.

The fourth chapter of the "Theorica" (i.e. the first part of the *Testamentum*) is introduced by a clause that indicates that the preceding text—especially chapter three—illustrates a doctrine of the macrocosm.[43] That becomes evident from the call, made by nature (who, following the poetic tradition, is personified) upon the alchemist who is asked to keep her 'tools' (*instrumenta*) well hidden from the impious, who want to violate her secrets and are in fact killing her.[44] At the same time, the alchemist is told that it is necessary to know the secrets of nature to care for her, and consequently the alchemist explicitly recommends to his disciple to act with a 'scientific' attitude (*spiritu scientifico*).[45] Knowledge of the world structure, which is needed to pursue alchemical research successfully, is thus obtained by means of something similar to a commentary to the "In principio"—precisely the kind of 'physics' used by the twelfth century cosmologists and by Robert Grosseteste's commentary *In Hexaemeron*, but undeniably outdated by the beginning of the fourteenth century.

Furthermore, an account of creation is offered on which the alchemist can base his doctrine, which is defined in terms of the 'microcosm' (*magisterium ... tanquam minor mundus*).[46] God created all of nature (i.e. angels, the heavens and the elemental world) out of one substance, called *quinta essentia*. Being the first matter of all creatures, this fifth essence is the nexus that connects the high and the low. It is the material source of the four elements and provides their nucleus: "The supreme creator divided this part in five parts, and from the purest he created the fifth substance of the elements,

[43] *Testamentum*, 18: "Cum determinatum sit de forma maiori, nunc descendendo determinabimus de forma minori."

[44] *Testamentum*, 6: "morti me tradere volunt."

[45] *Testamentum*, 12, 362.

[46] *Testamentum*, 12.

which participates with heavenly matter ... Then he divided it [i.e. fifth substance] into four parts".[47]

The alchemists, however, did not limit themselves to understanding (*intelligere*) first matter: they tried to obtain it by means of their art and especially by means of distillation. This old alchemical technique was thus to become the focus of the *Liber de consideratione quintae essentiae* written by the Franciscan spiritual author John of Rupescissa at the middle of the fourteenth century.[48]

John of Rupescissa, who endorsed the distillation of wine as used by physicians and surgeons since the middle of the thirteenth century to make *aqua ardens* and praised in the medical literature as the proper technique of the "children of Hermes," obtained from his alchemical practice a method of refining ardent water to a point hitherto not attained by any physician.[49] He considered that this subtle substance exceeded all elementary qualities and was therefore persuaded he had obtained the incorruptible root of life (*radix vitae*) and the first matter of every elementary being; in one word: the fifth essence.[50]

Moreover, he identified this fifth essence with the wonderful remedy that would fulfill the expectation of an entire generation of alchemists, namely the elixir, remedy for both human and metalline bodies.[51] His wine alcohol or fifth essence was, accord-

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[47] *Ibidem*: "Summus Creator divisit istam partem [the third part of created substance] in 5 partes et ex una parte magis pura creavit Deus quintam substanciam elementorum, que participat cum re celestiali [...]. Et istam divisit in quattuor partes [i.e. the four elements]."

[48] R. Halleux, "Les ouvrages alchimiques de Jean de Rupescissa," in *Histoire Littéraire de la France*, vol. 41 (Paris, 1981), 241-84; Colnort-Bodet, *Le code alchimique*, 154-178.

[49] On distillation of medical waters, see C.A. Wilson, *Philosophers, Iòsis and the Water of Life* (Leeds, 1984), esp. pp. 61-62, 67-68, 81-84; M. Pereira, "Nota su Bonaventura da Iseo e le acque medicinali," in *Atti dell'VIII Convegno Nazionale di Storia e Fondamenti della Chimica* (Rome, 2000), forthcoming. On the medical use of Rupescissan *quinta essentia*, C. Crisciani and M. Pereira, "Black death and golden remedies. Some remarks on alchemy and the plague," in *The Regulation of Evil. Social and Cultural Attitudes to Epidemics in the Middle Ages*, eds. A. Paravicini Bagliani and F. Santi (Florence, 1998).

[50] Johannes de Rupescissa, *Liber de consideratione quintae essentiae* (Basel, 1561), 17: "Ergo radix vitae est quaerere rem de se (si staret in aeternum) incorruptibilem [...]. Et scito sine falsitate, quod nullum quatuor elementorum est tale [...]. Et quia omnes medici per tales res corruptibiles, quae sunt elementa, vel ex elementis composita, materialiter operati fuerunt, numquam potuerunt ad arcanum quod quaerimus devenire."

[51] J. Needham, *Science and Civilization in China*, 6 vols. (Cambridge, 1956-88),

ing to John, the incorruptible stone sought after by alchemists, that is, a substance capable of sustaining or rejuvenating life, and of conferring longevity, if not immortality. This incorruptibility could not be conferred by a corruptible (i.e. mixed) remedy but only by the alchemical fifth essence, which is "with respect to our bodies, like heavenly matter is with respect to the four elements."[52]

Yet, this 'root of life' does not come from heavens, but "can be extracted from the body of nature (i.e., matter) created by God by means of human artifice"[53]: it is heavenly matter obtained on earth, a real triumph over Aristotelian dualism, and a secret kept hidden by the *summi Philosophi.* These had prescribed that it should be concealed—may we surmise that John was referring to Hermes and to his secrets written on an emerald table? It was thus precisely while opening up the new field of alchemical pharmacology, that John of Rupescissa unveiled the primitive meaning of alchemy as the search for the 'One thing,' the pure matter lying at the core of every created body, evidence of the occult unity between heavens and earth.

Summary

Alchemical writings of Arabic origin introduced into the Latin natural philosophy of the twelfth century a cosmological issue that was at variance with Aristotelian cosmology: the idea of a subtle substance that stood at the origin of the four elements and encompassed heaven and earth. In this article, I consider the links of this notion with Hermetic and Stoic thought; its association with the technical process of distillation; its emergence in some philosophical texts of the early thirteenth century; and finally its full development in two fourteenth century alchemical treatises, the *Testamentum* attributed to Raimond Lull and the *Liber de consideratione quintae essentiae* written by John of Rupescissa.

5: 491-509; M. Pereira, "Teorie dell'elixir nell'alchimia latina medievale," in *Les crises*, 103-48.

[52] Johannes de Rupescissa, *Liber*, 20: " Oportet rem quaerere, quae sic se habeat respectu quatuor qualitatum, quibus compositum est corpus nostrum, sicut se habet caelum respectu quatuor elementorum."

[53] *Ibidem*, "Talis est radix vitae Essentia quinta [...] quae extrahitur de corpore naturae creatae a Deo cum artificio humano."